

What is claimed is:

1. An acceleration sensor comprising:

a mass mounted on a semiconductor substrate through beams for being displaced in accordance with application of a dynamic quantity, wherein the dynamic quantity is detected on the basis of variation of an electrical characteristic between each of movable electrodes formed integrally with the mass and each of fixed electrodes which is supported at one end thereof by the semiconductor substrate,

wherein the mass is comprised of a plurality of divided masses arranged in series, wherein the plurality of divided masses are connected together through connecting beams for permitting the plurality of divided masses to be displaced so as to approach to one another and move away from one another.

2. The acceleration sensor according to claim 1, wherein:

the plurality of divided masses comprise first to third masses in series to detect the application of the dynamic quantity in two orthogonal axis directions;

the first and third masses located at both the ends of the mass are mounted on the semiconductor substrate through beams so as to be allowed to be displaced in the direction orthogonal to a connecting direction of the masses and have movable electrodes formed integrally with

the respective masses so that application of dynamic quantity in the direction along which the plurality of divided masses are allowed to be displaced is detected; and

the second mass which is connected to the first and third masses through connecting beams so as to be located at the center position between the first and third masses has a movable electrode formed integrally with the second mass so that application of dynamic quantity in the connecting direction of the plurality of divided masses corresponding to the displacement-allowed direction is detected.

3. The acceleration sensor according to claim 1, wherein the semiconductor substrate comprises an insulating film and a silicon film formed on the semiconductor substrate, and each of the plurality of divided masses and the movable electrode and the fixed electrode formed integrally with the mass are formed from the silicon film.

4. The acceleration sensor according to claim 3, wherein the silicon film surrounds the plurality of divided masses and the movable and fixed electrodes.

5. The acceleration sensor according to claim 4, wherein the movable electrodes and the fixed electrodes

are equipped with an electrode for fixing the potential of the silicon film to a constant value.

6. The acceleration sensor according to claim 5, further comprising a cap for covering the plurality of divided masses and the movable and fixed electrodes on the semiconductor substrate is a equipped to a formation portion where the plurality of divided masses and the movable and fixed electrodes are formed.

7. The acceleration sensor according to claim 6, wherein the cap is formed of conductive material or semiconductor material which is adhesively fixed to the semiconductor substrate through insulating adhesive agent at a contact site thereof with the semiconductor substrate.

8. The acceleration sensor according to claim 7, wherein the cap is equipped with an electrode for fixing the potential of the cap to a constant value.

9. The acceleration sensor according to claim 1, further comprising a cap for covering the plurality of divided masses and the movable and fixed electrodes on the semiconductor substrate is a equipped to a formation portion where the plurality of divided masses and the movable and fixed electrodes are formed.

10. The acceleration sensor according to claim 9, wherein the cap is formed of conductive material or semiconductor material which is adhesively fixed to the semiconductor substrate through insulating adhesive agent at a contact site thereof with the semiconductor substrate.

11. The acceleration sensor according to claim 10, wherein the cap is equipped with an electrode for fixing the potential of the cap to a constant value.